

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 166-171 are presently active in this application. Claims 166-170 have been amended to better clarify the present invention without the introduction of any new matter.

The outstanding Office Action includes a rejection of Claims 166-169 under the first paragraph of 35 U.S.C. §112, an alternative rejection of Claim 166 under 35 U.S.C. §102(a) as being anticipated by JP 62-98340 (hereinafter JP '340) or Nishio (U.S. Patent No. 4,864,470), a rejection of Claim 167 as being unpatentable under 35 U.S.C. §103(a) over JP '340 or Nishio, a rejection of Claims 168 and 169 under 35 U.S.C. §103(a) as being unpatentable over JP 53-35878 (hereinafter JP '878), or JP 6-77758 (hereinafter JP '758), and a rejection of Claims 170 and 171 under 35 U.S.C. §103(a) as being unpatentable over Yatsuda (U.S. Patent No. 5,252,882), Onishi et al (U.S. Patent No. 5,821,665, Onishi) or Tsuji et al (U.S. Patent No. 5,699,027, Tsuji).

Turning to the rejection of Claims 166-169 under the first paragraph of 35 U.S.C. §112 as allegedly failing to contain a written description of a device where the pad on a circuit board part of the device is thicker than a circuit board wiring pattern or of a circuit board substrate with a recessed center portion, as stated at page 2 of the outstanding Office Action, it is first noted that the requirement of Claim 168 as to a difference in thickness between two regions has been clearly misinterpreted as requiring “a substrate with a recessed center portion.”

In this last regard, what Claim 168 actually requires is “a printed circuit board possessing a first region and a second region which is larger in thickness than the first region,

the second region including a board wiring connection portion.,” with no requirement for a central portion of the printed circuit board (PCB) to be recessed.

Support for the language quoted above from Claim 168 is further clear regarding the description in the specification that is presented as to FIG. 25, for example. This description makes it clear that the PCB substrate 1 has portions of two different thicknesses. See, for example, page 317 of the specification at lines 3-9. Note further that lines 14-18 of this page describe the thicker substrate portion as a connecting portion relative to a connection to be made to the surface acoustic wave (SAW) support 3 from the PCB 1 via the conductive connector 6.

With further respect to the basis for this rejection of Claims 166-169 under the first paragraph of 35 U.S.C. §112, the recitation of a "pad" in these claims has been changed to a -connecting portion--. While it is believed that the previous language "pad" was clearly definitive of such a --connecting portion--, and while it is clear that nothing in the written description portion of the first paragraph of 35 U.S.C. §112 requires that the claims use the exact words of the specification, the change has been made to avoid any possible reliance on the term "pad" not appearing in the specification and because this change does not alter the scope of these claims.

Furthermore, with specific regard to disclosed support for the challenged Claim 166 subject matter involving a pad (now a connecting portion) that is thicker than the board wiring pattern, page 314, lines 12-14, of the specification, for example, disclose that “a part of the conductive wiring pattern 2 has a wiring pattern 71 [illustrated in Figure 24] thicker in thickness of conductive material than that of the other part.” This thickening of the conductor portion 71 is explained to be part of the connection between the PCB wiring and

that of the SAW support 3 that also includes conductive connecting member 6 at lines 6- 13 on page 315 of the specification, for example.

Accordingly, there is clear support in the specification for the challenged limitations of Claims 166-169 and the rejection of these claims under the first paragraph of 35 U.S.C. §112 that asserts the contrary is clearly improper and the withdrawal thereof is respectfully submitted to be in order.

Before turning to the outstanding prior art rejections, it is believed that a brief review of the present invention would be helpful.

In this respect, a first aspect of the present invention relates to a SAW device that includes a PCB that has a PCB wiring pattern having a portion used in a connection with the SAW transducer on another support that includes a greater thickness of conductive material than that of the other parts of the wiring pattern. In addition, this SAW device includes a sealing member that seals a space portion formed between a surface of the PCB and a surface of the interconnected SAW transducer element while the sealing member itself insures the space is free from any intrusion by the sealing member. Thus, a SAW device is provided that has a spacing between the PCB and SAW transducer support that will be determined by the thickness of conductive connecting member and by the thickness of conductive material formed as part of a connecting portion that will cooperate with this conductive connecting member to ensure a desired volume of space be provided between the SAW element and the PCB. Furthermore, the sealing member itself is configured so that it does not spread or intrude into this space to eliminate the need for a dam or frame-shaped member while providing a propagation path for the surface acoustic wave in a manner that simplifies the construction of the overall device and reduces costs as to eliminating the need for this separate dam or other member to prevent intrusion of the sealing member into the space.

In a second aspect of the present invention, a SAW device is provided that comprises a PCB having a first region and a second region, the second region being of a greater thickness than the first region. Thus, once again, the conductive connecting member being used does not alone determine the spacing between the SAW transducer support element and the PCB, the thickness of the second region also contributes to determining this spacing and, thus, a desired volume of the space formed between the SAW transducer support element and the PCB. Again, a sealing member is provided that will seal this space portion formed between the surface of the PCB and the surface of the SAW transducer support element, which sealing member itself prevents the spreading thereof into this space without the need for a dam or other spread preventing member. Thus, this aspect of the present invention also provides a propagation path for the surface acoustic wave using a simplified construction process that does not require forming a dam or like intrusion preventing element, such as the above-noted frame-shaped member, to therefore simplify fabrication and reduce the cost thereof.

A third aspect of the present invention involves a conductive connecting member that is made up of a plurality of bumps that are stacked together to obtain a desired spacing between a wiring pattern of a PCB and a wiring connecting portion of a SAW transducer support element. In this aspect of the present invention, the appropriate volume of the space between the SAW transducer support element and the PCB is determined by the number of stacked conductive connecting elements, such as bumps, used as the conductive connecting member. Once again, a sealing member is provided that will seal the space portion formed between the surface of the PCB and the surface of the SAW transducer support element while preventing its own spread into this space portion to ensure that a propagation path of the

surface acoustic wave is not interfered with without the need for any added dam or frame-shaped member to prevent such spread, to thereby simplify construction and reduce costs.

Turning to the rejection of Claim 166 as being anticipated by JP '340 or Nishio, it is first noted that JP '340 simply discloses a SAW device that has a lead frame with a projection. In this SAW device, a connecting pad of the SAW element is connected to the projection of the lead frame. However, the SAW device of JP '340 does not include the claimed sealing member that will seal the space formed between the surface of the substrate and the surface of the SAW element on its own, without the sealing member spreading into the space..

Turning to Nishio, this reference discloses a mounting device for an electronic component that can be a SAW device having a function surface that faces a base plate with a space being provided there between. Clearly missing from Nishio however, is any teaching or suggestion that a PCB is to have a board wiring pattern with a part that is greater in thickness relative to its conductive material than that of any other part. In addition, the SAW device disclosed by Nishio has no sealing member for sealing a space portion that is formed between the surface of the PCB and the surface of the SAW support element which will itself prevent spreading into that space portion without the use of a dam type member.

Turning to the rejection of Claim 167, it is noted that reliance upon routine trial and error has been held to only be obvious relative to a known result effective variable. Accordingly, there must first be a prior art teaching of the variation of thickness between two parts of a wiring pattern in the arrangement specified as effecting some result needing to be optimized for some prior art purpose before such optimization becomes a routine matter. See In re Antonie, 195 USPQ 6, 8-9 (CCPA 1977). As no such prior art teaching or purpose

as to optimizing differences in wiring pattern thicknesses has been established, the rejection of Claim 167 is clearly improper and should be withdrawn.

Turning to the rejection of Claims 168 and 169 as being unpatentable over JP '878 or JP '758, it is first noted that JP '878 discloses a SAW device that includes a support base having a recessed portion. While this recessed portion is thinner than other portions of the support base, Claim 168 requires that the device is to have a sealing member of the nature claimed. Whatever else is taught or suggested as to the SAW device of JP '878, there is no teaching of providing the claimed sealing member that will seal the space between the surface of the support base without the need for a separate dam or spreading prevention arrangement.

Turning to JP '758, it is noted that this reference discloses a package for a SAW device that has a package that includes a recessed portion. It is with regard to this package recessed portion that this reference teaches an input/output interdigital electrode being positioned, thus, the electrode is not positioned where a thickened portion of a PCB lies, rather it is positioned in a recess portion of the package. Moreover, whatever else could be said about the SAW device of JP '758, it cannot be fairly or reasonably said that it any teaching or suggestion of the sealing member that is required by these claims that will seal the claimed space portion between the surface of the PCB and the surface of the SAW support in a manner that it will prevent spreading of the sealing member into this space portion without a dam or other spread preventing member.

With further regard to the inappropriate attempt to take official notice of the acoustic absorber positioned as claimed, the courts reviewing the PTO have noted that Official Notice is only usable under very limited circumstances that are not present here. See In re Ahlert, 165 USPQ 418, 421 (CCPA 1970) as follows:

Typically, it is found necessary to take notice of facts which may be used to supplement or clarify the teachings of a reference disclosure, perhaps to justify or explain a particular inference to be drawn from the reference teachings. The facts so noted serve to 'fill in the gaps' which might exits in the evidentiary showing made by the Examiner to support a particular ground of rejection. We know of no case in which facts judicially noted comprise the principle evidence upon which a rejection was based, or of such importance as to constitute a new ground of rejection when combined with the other evidence previously used. [Emphasis added.]

In addition to the guidelines established by Ahlert, the PTO reviewing court more recently noted in In re Zurko, 59 USPQ2d 1693-1698-99 (Fed. Cir. 2001) that:

Finally, the deficiencies of the cited references cannot be remedied by the Board's general conclusion about what is "basic knowledge" or "common sense" to one of ordinary skill in the art. As described above the Board contended that even if the cited UNIX and FILER2 references did not disclose a trusted path, "it is basic knowledge and trusted environments is performed over trusted paths and, moreover, verifying the trusted command in UNIX over a trusted path is "nothing more than good common sense." *Ex part Zurko* slip opp. at 8. We cannot accept these findings by the Board. This assessment of basic knowledge and common sense was not based on any evidence in the record, and, therefore lacks substantial evidence support. As an administrative tribunal, the Board clearly has expertise in the subject matter over which it exercises jurisdiction. This expertise may provide sufficient support for conclusions as to peripheral issues. With respect to core factual findings and determination of patentability, however, the Board cannot simply reach conclusions based on its own understanding or expertise -- or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings.

Just as there was no concrete evidence as presented in Zurko none has been presented here.

In any event, it is clear that JP '758 and JP '878 both fail to teach the claimed sealing member that will seal a space portion formed between the surface of a PCB and a surface of a

SAW element support to prevent the sealing member from intruding into that space portion without having a separate spread blocking member.

With further regard to Claim 169, it is noted that this claim adds features to those of Claims 168 that are clearly not taught or suggested by either of JP '758 or JP '878, which are not treated in the outstanding rejection. Accordingly, withdrawal of the rejection of Claim 169 is clearly in order, not only for the reasons advanced above as to parent Claim 168, but also because the failure to treat the limitations added by this claim.

Turning to the rejection of Claims 170 and 171 over Yatsuda, Onishi or Tsuji, it is noted that the basis for a broad rule that would include the provision of an integral member as separate parts as being always obvious has not been provided. Moreover, this "rule" would appear to be a type of "design choice" argument that has no applicability to a limitation that provides benefits and solves problems as noted at page 319, lines 20-26, of the specification, for example.

In this last regard and as noted by the decision In re Kuhle, 188 USPQ 7, 9 (CCPA 1975), "[u]se of such means of electrical connection in lieu of those used in the references solves no stated problem and would be an obvious matter of design choice within the skill in the art" (emphasis added and citations omitted) which clearly implies that when there is a stated problem being solved the doctrine of "design choice" is not applicable. In re Chu, 36 USPQ2d 1089, 1095 (Fed. Cir. 1995) is further relevant in noting that limitations providing solutions to particular problems that lead to an advantageous result cannot be dismissed by merely asserting that such limitations involve matters of "design choice." Further in this last regard, the PTO reviewing court recently reemphasized the need to properly establish motivation as to proposed reference modifications and avoiding improper reliance on "design

choice" and unsupported conclusions as to substitutions and interchangeability as a substitute for such motivation in In re Dembiczak, 50 USPQ2d 1614, 1618 (Fed. Cir. 1999) as follows:

To the contrary, the obviousness analysis in the Board's decision is limited to a discussion of the ways that the multiple prior art references can be combined to read on the claimed invention. For example, the Board finds that the Holiday bag reference depicts a "premanufactured orange" bag material, see *Dembiczak*, slip op. at 21, finds that Shapiro teaches the use of paper bags in various sizes, including "large," *see id.* at 22-23, and concludes that the substitution of orange plastic for the crepe paper of Holiday and the paper bags of Shapiro would be an obvious design choice, *see id.* at 24. Yet this reference-by-reference, limitation-by-limitation analysis fails to demonstrate how the Holiday and Shapiro references teach or suggest their combination with the conventional trash or lawn bags to yield the claimed invention. See *Rouffet*, 149 F.3d at 1357, 47 USPQ2d at 1459 (noting Board's failure to explain, when analyzing the prior art, "what specific understanding or technical principle . . . would have suggested the combination"). Because we do not discern any finding by the Board that there was a suggestion, teaching, or motivation to combine the prior art references cited against the pending claims, the Board's conclusion of obviousness, as a matter of law, cannot stand.

Once again, the admonitions in Zurko are believed to be relevant in that "[w]ith respect to core factual findings and determination of patentability, however, the [PTO] cannot simply reach conclusions based on its own understanding or expertise . . ." In addition, none of these applied reference have any teachings or suggestions of the claimed sealing member which must be configured to itself prevent spreading into the space portion that is formed between a PCB and an element bearing a SAW transducer.

The final statement on page 4 of the outstanding Office Action is nothing more than a conclusory statement that has not been properly established using evidence. Note the following from In re Dembiczak, 50 USPQ2d 1614, at 1617:

Broad conclusory statements regarding the teaching of multiple references standing alone, are not "evidence."

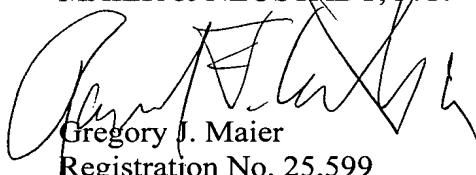
Once again, the above-noted Zurko is believed to be relevant in terms of requiring proper findings and supporting evidence, not mere conclusions about what is known in the art and what the artisan might attempt to do. What is again lacking in this rejection as in the other

103 rejections, is the pointing to some concrete evidence in the record to support the subjective findings being made.

As no other issues are believed to be outstanding in the present application, it is believed that this application is clearly in condition for formal allowance and, accordingly, an early and favorable action to that effect is, therefore, respectfully requested.

Respectfully submitted,

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IN THE CLAIMS

Please amend the claims as follows:

--166. (Amended) A surface acoustic wave device, comprising:

a printed circuit board processing a first board surface and a second board surface, the first board surface having a board wiring pattern including first portions of conductive materials of a first thickness and a board wiring [pad which] connecting portion of conductive material of a second thickness that is thicker than the first thickness [board wiring pattern];

a surface acoustic wave element possessing a first element surface and a second element surface, the first element surface including a transducer portion, an element wiring connecting portion [pad], and a surface acoustic wave absorbing member formed outside of the element wiring connecting portion [pad], and the first element surface being disposed in an opposite relation with respect to the first board surface; [and]

a conductive connecting member disposed between the board wiring [pad] connecting portion and the element wiring [pad] connecting portion; and
a sealing member configured to seal a space portion formed between the first board surface and the first element surface and to alone prevent the sealing member from spreading into the space portion.

167. (Amended) The surface acoustic wave device as set forth in Claim 166, wherein a difference between the first [a] thickness [of the board wiring pattern] and [a] the second thickness [of the board wiring pad] is in the range of from 5 μm to 100 μm .

168. (Amended) A surface acoustic wave device, comprising:

a printed circuit board possessing a first region and a second region which is larger in thickness than the first region, the second region including a board wiring connection portion [pad];

a surface acoustic wave element possessing a first element surface and a second element surface, the first element surface including a transducer portion, an element wiring [pad] connecting portion and a surface acoustic wave absorbing member, and being disposed with a face-down arrangement so that the surface acoustic wave absorbing member is disposed in an opposite relation with respect to the first region of the printed circuit board; [and]

a conductive connecting member disposed between the board wiring [pad] connecting portion and the element wiring [pad] connecting portion; and
a sealing member configured to seal a space portion formed between the first board surface and the first element surface and to alone prevent the sealing member from spreading into the space portion.

169. (Amended) The surface acoustic wave device as set forth in Claim 168 wherein a difference [between a] in thickness [of] between the first region and [a thickness of] the second region of the printed circuit board is in the range of from 5 μm to 500 μm .

170. (Amended) A surface acoustic wave device, comprising:

a printed circuit board possessing a first board surface and a second board surface, the first board surface having a board wiring pattern;

a surface acoustic wave element possessing a first element surface and a second element surface, the first element surface including a transducer portion, an element wiring [pad] connecting portion and a surface acoustic wave absorbing member, and the first element surface being disposed in an opposite relation with respect to the first board surface; [and]

a conductive connecting member disposed between the board wiring pattern and the element wiring [pad] connecting portion, the conductive connecting member being composed of a plurality of bumps stacked [according] so as to determine a spacing between the board wiring pattern and the element wiring pad; and

a sealing member configured to seal a space portion formed between the first board surface and the first element surface and to alone prevent the sealing member from spreading into the space portion.--